

Claims

1. Method for inspecting the quality criteria of flat textile structures
5 embodied in a multi-layer form according to a contour, in particular
woven, stitched, knitted, sewn or non-woven finished structures,
preferably provided with cut areas or holes, separated or forming a
material web, in particular when said structures are used for airbags,
carried out using image-forming inspection means, in particular optical
10 inspection means, preferably a CCD array camera or a linear array
camera, whereby a relative motion is produced between the structures
to be inspected and the camera, and the structure is arranged at least
by area at a defined distance from the image-forming inspection means
preferably on a substantially flat surface of a control table or inspection
15 line or led past the field of view of the camera at a defined distance by
a roller,
comprising the following steps:
recording the structure using said inspection means, in particular the
camera, and saving or buffering the image data captured;
20 segmenting the image data captured based on the texture differences
distinguishable in the image;
determining segment characteristics for the individual image segments
such as segment center of gravity – segment area – segment main axis
and/or localized rectangles or the like, on the basis of which a
25 distinctive system of coordinates for the structure and corresponding
structures of the same type can be defined which is invariant relative
the torsion, reflection, stretching, compression and deformation of the
structure, said system of coordinates allowing a definition of measuring
points to be made.
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2. Method according to claim 1,
characterized in that
the definition or specification of measuring points preferably in critical
distance and marginal areas is realized based on manufacturer or
35 consumer quality specifications.

3. Method according to claim 1 or 2,
characterized in that
inspection is made of the actual dimensional accuracy and pre-defined
5 distances, in particular from cut areas to seams or from seams to the
outer edge of the structure.
4. Method in accordance with one of the preceding claims,
characterized in that
10 a quality log is produced on the basis of the determined inspection data.
5. Method in accordance with one of the preceding claims,
characterized in that
optically detecting the position and/or direction of identification threads
15 woven into the structure to be inspected can be used in the determi-
nation of the distinctive system of coordinates.
6. Method in accordance with one of the preceding claims,
characterized in that
20 image processing edge-scanning algorithms are used to analyze the
actual dimensional accuracy of distances adjacent the segment borders
(edge image K).
7. Method in accordance with one of the preceding claims,
characterized in that
25 upon an undefined position being detected, in particular a certain area
of stretch or compression to the textile structure, an analysis is carried
out as to whether and to what extent there are measuring points for
determining critical distances in the stretched and/or compressed area
30 in order to subsequently reject selected measuring points, define
alternative measuring points, or occasion the retaking of the image of
the relevant textile structure.

8. Method in accordance with one of the preceding claims,

characterized in that

5 recording the image is done in a procedure using transmitted or incident light, whereby the inspection table or the inspection line is configured as an x-ray mechanism or the surface of the inspection table or the inspection line creates a contrasting background for the textile structure.

9. Method in accordance with one of the preceding claims,

10 **characterized in that**

the textile structure is detached from the material web on the basis of a contour line ascertained in accordance with one of the afore-mentioned procedures.

15 10. Flat textile structures embodied in a multi-layer form according to a contour, in particular woven, stitched, knitted, sewn or non-woven finished structures, in particular when used for airbags, which are detached from the material web in a procedure according to claim 9.